



The Chemical Company

# GLENIUM<sup>®</sup> C315

**A unique third generation superplasticiser, developed especially for the ready mix or pre-cast market where high early strength, highest concrete quality and aesthetically superb surfaces are of importance**

## Description of Product

GLENIUM C315 is a unique third generation superplasticiser based on modified polycarboxylic ether. The product has been primarily developed for the use in the concrete industry where the highest durability and performance are required.

GLENIUM C315 is free of chloride and low alkali. It complies with BS 5075 Part 3 and EN934-2. GLENIUM C315 is compatible with all types of cement.

## The third generation chemistry of GLENIUM 315

What differentiates GLENIUM C315 from other generations of polycarboxylic ether is a new, unique mechanism of action that greatly improves the effectiveness of cement dispersion. Traditional superplasticisers, based on melamine and naphthalene sulphonates, are polymers that are absorbed by the cement granules. They wrap around the granules' surface areas of the very early stage of the concrete mixing process. The sulphonic groups of the polymer chains increase the negative charge of the cement particle surface and disperse these particles by electrical repulsion. This electrostatic mechanism causes the cement paste to disperse and has the posited consequence of requiring less mixing water to obtain a given concrete workability.

GLENIUM C315 has a different chemical structure from the traditional superplasticisers. It consists of a carboxylic ether polymer with long side chains.

At the beginning of the mixing process, it initiates the same electrostatic dispersion mechanism as the traditional superplasticiser. But the side chains linked

to the polymer backbone generate a steric hindrance, which greatly stabilises the cement particle's ability to separate and disperse. Steric hindrance provides a physical barrier (alongside the electrostatic barrier) between the cement grains. With this process, flowable concrete with greatly reduced water content is obtained.

## Fields of Application

- The excellent dispersion effect makes GLENIUM C315 the ideal admixture for high quality concrete industry.
- The ability to work with an extremely low w/c ratio allows for the manufacture performance concrete early (18-24 hours) and final strengths. Concrete of high density, low permeability is also produced.

## Features and Benefits

- Flowable concrete with the lowest w/c ratio without segregation or blending
- Allows reduction of curing cycles - i.e. time or temperature
- Possibility of the elimination of steam curing
- Allows concrete production at low temperature
- Less vibration required, even in case of congested steel reinforcement
- Less workmanship required
- Improves concrete surface finish and texture
- Compared to traditional superplasticisers, the addition of GLENIUM 315 will improve the physical properties and thus the durability of concrete

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## GLENIUM C315 increases

- Initial and final compressive strength
- Initial and final flexural and tensile strength
- E-modulus
- Adhesion to reinforcement and pre-stressed steel
- Resistance to carbonation and chloride ion attack of concrete
- Resistance to aggressive atmospheric conditions

## GLENIUMC315 decreases

- Risk of shrinkage
- Creep

## Packaging

GLENIUM C315 is available in 210ltr drums, 1000ltr container or in bulk.

## Technical Data/Typical Properties

Form:	Viscous liquid
Colour:	Cream
Specific gravity:	1.08
pH:	5-8
Sulphate:	Less than 1gm/ltr
Alkali content:	Less than 5gm/ltr
Chloride ion:	Less than 0.1 % w/v (nil)
Hazardous ingredients:	None

## Compatibility of GLENIUMC315 With GLENIUM ACTIVATOR

Where ambient temperatures of below 12°C are encountered and high early strength is required, to enable early demoulding within 24 hours, then it may be necessary to add GLENIUM ACTIVATOR with GLENIUM 315. The recommended dosage of a GLENIUM ACTIVATOR is 1ltr/100kg of cement (binder).

This combination guarantees a uniform and fast development of initial and final strength.

At temperatures above 12°C, the addition of GLENIUM ACTIVATOR is not required.

Like GLENIUM 315, GLENIUM ACTIVATOR is free of chloride and is a low alkali; it is compatible with all types of cements.

Other combinations that are recommended:

- Air-entraining agents (such as MICRO-AIR range) to optimise frost/thaw resistance
- Silica fume for higher density
- Expanding agents (such as for controlled shrinkage)
- Synthetic and steel fibres
- Curing agents against evaporation of mixing water

## Application

GLENIUM C315 is a ready-to-use admixture to be added to the concrete mix as a separate component.

Optimal concrete plasticising effect (and thus maximum mixing water reduction) is obtained if GLENIUM C315 is added into the concrete after the first 50-70% of the water has been mixed. Avoid adding the admixture to dry aggregate or sand. In all cases, it is important to add GLENIUMC315 first and the other admixtures subsequently.

## Dosage

The normally recommended dosage rate is between 0.2-2% of cement weight (binder), depending on specific mix design and requirements.

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Other dosages may be recommended in special cases, according to specific job conditions (consult BASF's Technical Services Department for advice) Trial mixes should be carried out to ensure optimum dosage and effect.

## Storage

It is recommended to store GLENIUMC315 in tightly closed packaging, at moderate temperatures not below +5°C. If frozen, thaw at approximately +20°C until completely reconstituted.

## Shelf life

Up to 24 months if stored according to manufacture's instructions in unopened containers.

## Health and Safety

For full information on health and safety matters regarding this product, the relevant material safety data sheet should be consulted.

## Note

Field service, where provided, does not constitute supervisory responsibility. For additional information, contact your local BASF representative.

BASF reserves the right to have the true cause of any difficulty determined by accepted test methods.

## Quality Statement

All products manufactured by BASF Egypt, or imported from BASF affiliate companies worldwide, are manufactured to procedures certified to conform to the quality, environment, health & safety management systems described in the ISO 9001:2000, ISO 14001:2004 & OHSAS 18001:1999 standards.

12/07 BASF-EG

\* Properties listed are only for guidance and are not a guarantee of performance.

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